

## Patent Claims

1. Sensor system with an arrangement of sensors (10, 11, 12, 13), wherein each sensor (10, 11, 12, 13) detects a magnetic or electrical field and outputs an electric basic sensor signal at its sensor outputs (21, 22, 23, 24),

- in which the sensor outputs (21, 22) of each sensor (10, 11, 12, 13) are connected to the inputs (41, 42, 43, 44) of a signal modulator (30, 31), wherein the signal modulator (30, 31) has at least two control states, wherein in a first control state, the corresponding basic sensor signal is fed to the outputs (51, 52) of the signal modulator (30, 31) as a sensor end signal (iop, ion) and, in a second control state of the signal modulator (30, 31), the inverted basic sensor signal of the corresponding sensor (10, 11, 12, 13) is fed to the outputs (51, 52) of the signal modulator as a sensor end signal (iop, ion),

- and with a device (6) for the addition of the sensor end signals (iop, ion) to a system signal (VOP, VON).

2. Sensor system according to claim 1, wherein the sensors (10, 11, 12, 13) are Hall sensors.

3. Sensor system according to one of claims 1 or 2, wherein an operational transconductance amplifier (70, 71) is connected between each sensor (10, 11, 12, 13) and the corresponding signal modulator (30, 31).

4. Sensor system according to one of claims 1 through 3, wherein the signal modulators (30, 31) are connected to one another in parallel.

5 5. Sensor system according to one of claims 1 through 4, wherein the signal modulators (30, 31) are each connected to a control logic circuit (8).

6. Sensor system according to claim 5,  
wherein the signal modulators (30, 31) can be controlled by a digital control word.

10 7. Sensor system according to one of claims 1 through 6, wherein the sensors (10, 11, 12, 13) are arranged in a plane.

15 8. Sensor system according to one of claims 1 through 7, in which the sensors (10, 11, 12, 13) are arranged in rows and columns that are orthogonal to one another.

9. Method to operate a sensor system according to one of claims 1 through 8,  
wherein the control states of the signal modulators (30, 31) define the configuration of the sensor system with the following steps:

20 a) reading in and storing of a first system signal (VOP, VON) in the case of a first configuration (K1)

b) modifying the configuration of sensor system in a second configuration (K2)  
that is different from the first configuration (K1)

c) reading in and storing a second system signal (VOP, VON) in the case of the  
second configuration (K2)

5 d) performing an arithmetic operation with the first and second system signal.

10. Method according to claim 9, wherein after Step c) and before Step d) yet  
other configurations of the sensor system can be set, and corresponding system signals  
(VOP, VON) can be read in and stored.

10